Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grade 5			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MS	MA.5.4.b	Develop concepts and apply appropriate tools and techniques to determine units of measure. Convert units within a given measurement system to include length, weight/mass, and volume.
Types of Engines (pgs. 11-23)	MS	MA.5.4.d	Develop concepts and apply appropriate tools and techniques to determine units of measure. Select and apply appropriate units for measuring length, mass, volume, and temperature in the standard (English and metric) systems.
Chemistry (pgs. 25-41)	MS	MA.5.4.b	Develop concepts and apply appropriate tools and techniques to determine units of measure. Convert units within a given measurement system to include length, weight/mass, and volume.
Chemistry (pgs. 25-41)	MS	MA.5.4.d	Develop concepts and apply appropriate tools and techniques to determine units of measure. Select and apply appropriate units for measuring length, mass, volume, and temperature in the standard (English and metric) systems.
Physics and Math (pgs. 43-63)	MS	MA.5.2.a	Explain and analyze number relationships and functions using algebraic symbols, and demonstrate an understanding of the properties of the basic operations. Determine the value of variables in equations and inequalities, justifying the process.
Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grade 6			
Activity/Lesson	**State**	**Standards**	
Chemistry (pgs. 25-41)	MS	MA.6.4.e	Apply geometric formulas and standard (English and metric) units of measurement in mathematical and real-life situations. Predict and calculate the volume of prisms.
Physics and Math (pgs. 43-63)	MS	MA.6.2.b	Use algebraic functions, patterns, and language across a variety of contexts. Complete a function table based on a given rule.

Physics and Math (pgs. 43-63)	MS	MA.6.2.d.1	Use algebraic functions, patterns, and language across a variety of contexts. State the following properties using variables and apply them in solving problems: Zero property of multiplication
Physics and Math (pgs. 43-63)	MS	MA.6.2.d.2	Use algebraic functions, patterns, and language across a variety of contexts. State the following properties using variables and apply them in solving problems: Inverse properties of addition/subtraction and multiplication/division
Physics and Math (pgs. 43-63)	MS	MA.6.2.d.3	Use algebraic functions, patterns, and language across a variety of contexts. State the following properties using variables and apply them in solving problems: Commutative and associative properties of addition and multiplication
Physics and Math (pgs. 43-63)	MS	MA.6.2.d.4	Use algebraic functions, patterns, and language across a variety of contexts. State the following properties using variables and apply them in solving problems: Identity properties of addition and multiplication
Physics and Math (pgs. 43-63)	MS	MA.6.2.d.5	Use algebraic functions, patterns, and language across a variety of contexts. State the following properties using variables and apply them in solving problems: Distributive properties of multiplication over addition and subtraction
Physics and Math (pgs. 43-63)	MS	MA.6.2.e	Use algebraic functions, patterns, and language across a variety of contexts. Describe a rule for a function table using words, symbols, and points on a graph and vice versa.
Physics and Math (pgs. 43-63)	MS	MA.6.4.d	Apply geometric formulas and standard (English and metric) units of measurement in mathematical and real-life situations. Use scale factors to perform dilations and to solve ratio and proportion problems.
Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grade 7			
Activity/Lesson	**State**	**Standards**	
Physics and Math (pgs. 43-63)	MS	MA.7.2.e.1	Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations. State the following properties using variables and apply them in solving problems: Zero property of multiplication

Physics and Math (pgs. 43-63)	MS	MA.7.2.e.2	Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations. State the following properties using variables and apply them in solving problems: Inverse properties of addition/subtraction and multiplication/division
Physics and Math (pgs. 43-63)	MS	MA.7.2.e.3	Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations. State the following properties using variables and apply them in solving problems: Commutative and associative properties of addition and multiplication
Physics and Math (pgs. 43-63)	MS	MA.7.2.e.4	Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations. State the following properties using variables and apply them in solving problems: Identity properties of addition and multiplication
Physics and Math (pgs. 43-63)	MS	MA.7.2.e.5	Develop and apply the basic operations of rational numbers to algebraic and numerical tasks. Create and apply algebraic expressions and equations. State the following properties using variables and apply them in solving problems: Distributive properties of multiplication over addition and subtraction.
Physics and Math (pgs. 43-63)	MS	MA.7.4.d	Apply appropriate techniques, tools, and formulas to determine measurements with a focus on real-world problems. Recognize that formulas in mathematics are generalized statements about rules, equations, principles, or other logical mathematical relationships. Solve problems involving scale factors using ratios and proportions.
Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grades 7-8			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MS	MA.7-8.PA.4.c	Understand measurable attributes of objects and apply various formulas in problem solving situations. Use formulas and/or appropriate measuring tools to find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures.

Chemistry (pgs. 25-41)	MS	MA.7-8.PA.4.c	Understand measurable attributes of objects and apply various formulas in problem solving situations. Use formulas and/or appropriate measuring tools to find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures.
Physics and Math (pgs. 43-63)	MS	MA.7-8.PA.1.c	Apply concepts and perform basic operations using real numbers in real-world contexts. Apply the concepts of Greatest Common Factor (GCF) and Least Common Multiple (LCM) to monomials with variables.
Physics and Math (pgs. 43-63)	MS	MA.7-8.PA.2.c	Apply properties to simplify algebraic expressions, solve linear equations and inequalities, and apply principles of graphing. Solve and check equations and inequalities using one variable.
Physics and Math (pgs. 43-63)	MS	MA.7-8.PA.2.f	Apply properties to simplify algebraic expressions, solve linear equations and inequalities, and apply principles of graphing. Given a linear graph, identify its slope as positive, negative, undefined, or zero, and interpret slope as rate of change.
Physics and Math (pgs. 43-63)	MS	MA.7-8.PA.4.b	Understand measurable attributes of objects and apply various formulas in problem solving situations. Develop, analyze, and explain methods for solving problems involving proportions, such as scaling and finding equivalent ratios.
Physics and Math (pgs. 43-63)	MS	MA.7-8.PA.4.c	Understand measurable attributes of objects and apply various formulas in problem solving situations. Use formulas and/or appropriate measuring tools to find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures.
Rocket Activity (pgs. 69-75)	MS	MA.7-8.PA.4.c	Understand measurable attributes of objects and apply various formulas in problem solving situations. Use formulas and/or appropriate measuring tools to find length and angle measures (to appropriate levels of precision), perimeter, area, volume, and surface area of polygons, circles, spheres, cones, pyramids, and composite or irregular figures.
Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grades 8-9			
Activity/Lesson	**State**	**Standards**	

Chemistry (pgs. 25-41)	MS	MA.8-9.TA.4.a	Demonstrate and apply various formulas in problem-solving situations. Solve real-world problems involving measurements (i.e., circumference, perimeter, area, volume, distance, temperature, etc.).
Chemistry (pgs. 25-41)	MS	MA.8-9.TA.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane (i.e., distance formula, Pythagorean Theorem).
Physics and Math (pgs. 43-63)	MS	MA.8-9.TA.1.d	Understand relationships between numbers and their properties and perform operations fluently. Apply the concept of Greatest Common Factor (GCF) and Least Common Multiple (LCM) to monomials with variables.
Physics and Math (pgs. 43-63)	MS	MA.8-9.TA.2.b	Understand, represent, and analyze patterns, relations, and functions. Explain and illustrate how changes in one variable may result in a change in another variable.
Physics and Math (pgs. 43-63)	MS	MA.8-9.TA.2.i	Understand, represent, and analyze patterns, relations, and functions. Classify and determine degree of a polynomial and arrange polynomials in ascending or descending order of a variable.
Physics and Math (pgs. 43-63)	MS	MA.8-9.TA.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane (i.e., distance formula, Pythagorean Theorem).
Rocket Activity (pgs. 69-75)	MS	MA.8-9.TA.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane (i.e., distance formula, Pythagorean Theorem).
Pushing the Envelope			
2007 Mathematics			
State Frameworks			
Mississippi Mathematics			
Grades 8-10			
Activity/Lesson	**State**	**Standards**	
Types of Engines (pgs. 11-23)	MS	MA.8-10.AI.4.a	Demonstrate and apply various formulas in problem-solving situations. Solve real-world problems involving formulas for perimeter, area, distance, and rate.

Types of Engines (pgs. 11-23)	MS	MA.8-10.AI.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane. (i.e., distance formula, Pythagorean Theorem).
Chemistry (pgs. 25-41)	MS	MA.8-10.AI.4.a	Demonstrate and apply various formulas in problem-solving situations. Solve real-world problems involving formulas for perimeter, area, distance, and rate.
Chemistry (pgs. 25-41)	MS	MA.8-10.AI.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane. (i.e., distance formula, Pythagorean Theorem).
Physics and Math (pgs. 43-63)	MS	MA.8-10.AI.2.d	Understand, represent, and analyze patterns, relations, and functions. Explain and illustrate how a change in one variable may result in a change in another variable and apply to the relationships between independent and dependent variables.
Physics and Math (pgs. 43-63)	MS	MA.8-10.AI.3.b	Understand how algebra and geometric representations interconnect and build on one another. Solve problems that involve interpreting slope as a rate of change.
Physics and Math (pgs. 43-63)	MS	MA.8-10.AI.4.a	Demonstrate and apply various formulas in problem-solving situations. Solve real-world problems involving formulas for perimeter, area, distance, and rate.
Physics and Math (pgs. 43-63)	MS	MA.8-10.AI.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane. (i.e., distance formula, Pythagorean Theorem).
Rocket Activity (pgs. 69-75)	MS	MA.8-10.AI.4.a	Demonstrate and apply various formulas in problem-solving situations. Solve real-world problems involving formulas for perimeter, area, distance, and rate.
Rocket Activity (pgs. 69-75)	MS	MA.8-10.AI.4.b	Demonstrate and apply various formulas in problem-solving situations. Explain and apply the appropriate formula to determine length, midpoint, and slope of a segment in a coordinate plane. (i.e., distance formula, Pythagorean Theorem).